

Diagnosing wilt and crown rot diseases of tomato in the field

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Wilts: Fusarium wilt vs Verticillium wilt

Verticillium wilt

- Cooler season disease—not stress triggered
- Timing: symptoms can begin to appear EARLIER than 45 days after planting
- V shaped lesions on leaves
- Stem is green on the outside but with brown vascular discoloration when branches are peeled back
- If you cut green branches at 6” and 12” there is often still vascular discoloration



Fusarium wilt

Caused by *Fusarium oxysporum* f. sp. *lycopersici*, FOL *L for wilt

- Timing: symptoms begin to appear NO EARLIER than 45 days after planting
- Late season disease; favored by heat, drought stress, heavy fruit load
- Bilateral chlorosis of leaves
- Stem is green on the outside but with brown Vascular discoloration
- If you cut green branches at 6" and 12" there is often still vascular discoloration



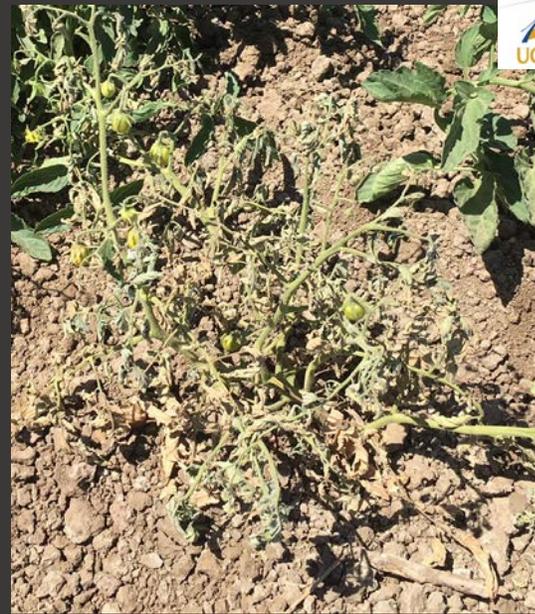


Crown rots, and how to distinguish from wilts

Fusarium crown and root rot

Caused by *Fusarium oxysporum* f. sp. radicis lycopersici *FORL, R for ROT

- Plant slowly declines over many weeks
- Crown rot is a LOCALIZED lesion
- Stem is brown on the outside and rotten on the inside
- IF you cut at 6" and 12" the stem will be healthy looking
- Roots will also often be decaying



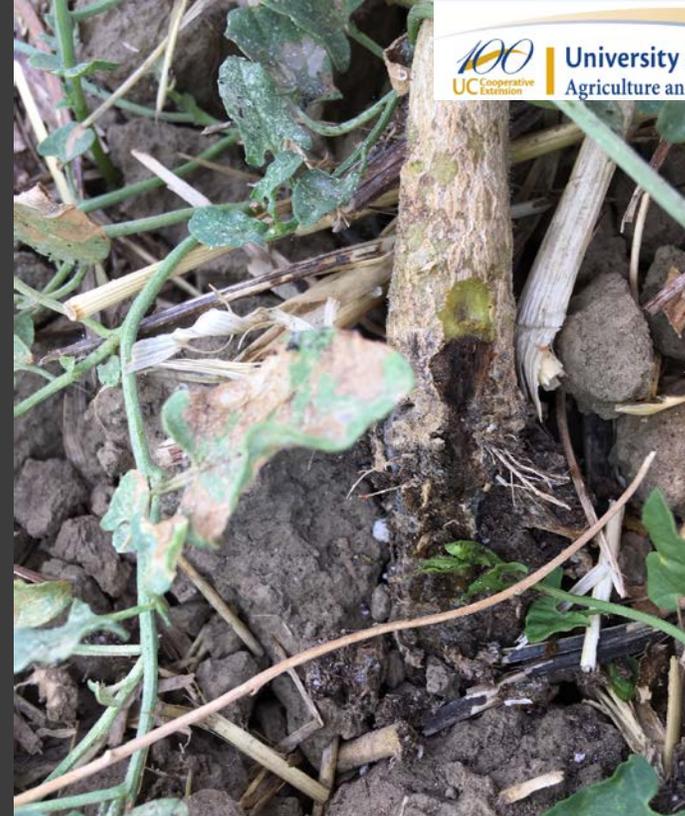
Southern blight

- *Sclerotium rolfsii*
- Heat-triggered disease: needs to be above 90F for several days
- Plants go from healthy to dying in 5-7 days
- Clear rot at the base. Lesion is localized
- Soil is clumped together with hyphae
- Under moist conditions, the fungus will form a white web or FAN on the crown



New Fusarium crown rot: *Fusarium falciforme*

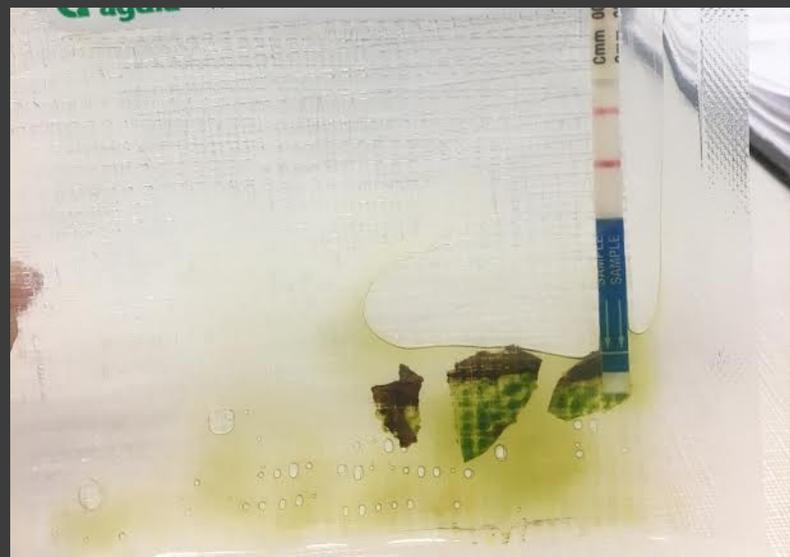
- Still learning about this disease
- Leaves all turn yellow and look smaller
- Crown rot starts below soil line
- Crown rot is a localized lesion
- Up to 15% of plants affected in the field



Other look a-likes: Bacterial Canker

Symptoms include

- Cracking of the stem
- Internal discoloration of the vascular systems
- Birds eye spot on fruit (don't always see)
- Note that Agdia tests are helpful but can give false positives



Diagnosing diseases in F3 cultivars

- F3 cultivars are becoming more common
- We know very little about susceptibility to other diseases
- We also know that a small percent (1-2%) are off types and can develop Fusarium wilt
- It's important to monitor these fields and send in possible Fusarium wilt samples for laboratory diagnosis
- Keeping an eye out for Fusarium wilt race 4 (currently not known to exist)

